



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/649,670	08/28/2003	Mitsuo Saitoh	2003_1228A	5686

513 7590 07/27/2006

WENDEROTH, LIND & PONACK, L.L.P.  
2033 K STREET N. W.  
SUITE 800  
WASHINGTON, DC 20006-1021

EXAMINER

OLSEN, ALLAN W

ART UNIT PAPER NUMBER

1763

DATE MAILED: 07/27/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

6

<b>Office Action Summary</b>	<b>Application No.</b> 10/649,670	<b>Applicant(s)</b> SAITOH ET AL.	
	<b>Examiner</b> Allan Olsen	<b>Art Unit</b> 1763	

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 04 May 2006.
- 2a) ☒ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 13-30 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 13-30 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 28 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

Art Unit: 1763

## DETAILED ACTION

### *Claim Objections*

Claims 17, 18, 21, 26, 27 and 30 are objected to because of the following informalities:

In claims 17, 18, 26 and 27, 10-X should be  $10^{-X}$ .

In claims 21 and 30, "N<sub>3</sub>" should be NF<sub>3</sub>.

Appropriate correction is required.

### *Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 13-30 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 includes a problematic limitation in that a length is required to be smaller than an area.

processing a part of the object to be processed with a plasma, while supplying electric power to at least one of the first electrode and the second electrode, where on a length in any direction of an area of a surface of the potentially controlled first or second electrode, which is arranged in a position opposite to the plasma source via the object to be processed, is smaller than an area of surface of the plasma source superposed on the object to be processed.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 13-30 are rejected under 35 U.S.C. 102(e) as being anticipated by US Patent Application Publication 2003/0170472 of Fukuda et al. (hereinafter, Fukuda).

Fukuda teaches plasma processing a substrate with a plasma apparatus comprising an electrode (25) opposed to a plurality of smaller electrodes (26, 36) (figures 1-3). Fukuda teaches the substrate comprises cellulose ester (page 3, [0049]), which has a volume resistivity of greater than  $10^{-6} \Omega \cdot \text{cm}$ . Fukuda teaches supplying argon to the plasma (page 9, [0153]) as well as a reactive gas, such as  $\text{CF}_4$  (page 10, [0158]).

***Response to Arguments***

Applicant's arguments filed May 4, 2006 have been fully considered but they are not persuasive.

With respect to independent claim 13, applicant argues,

Thus, the Fukuda method employs an electrode that is longer than the width of the film substrate, and this represents a fundamental difference relative to the plasma processing method recited in new independent claims 13 and 22 of the present invention.

In the present invention, only an arbitrarily selected region *is* processed, *so* that at least one of the electrodes *is* shorter than the substrate in all of directions. This means that the plasma processing method of the present invention *is* performed under a condition where the electrode is shorter than the substrate in any of a transverse direction and a transport direction, which is perpendicular to the transverse direction. For example, the method is performed with an electrode that has a lower surface that confronts or faces an upper surface of the substrate and is smaller than the upper surface of the substrate.

Independent claim 13 requires that a part of an object is processed with an electrode that is smaller than a length in any direction of an opposing surface of the object to be processed. As explained above, the Fukuda method employs an electrode that is longer than the substrate in order to achieve a completely different result.

Regarding independent claim 22, applicant's arguments are paraphrased below.

Similarly, independent claim 22 requires ... the area of the surface of the ... second electrode that is superposed on the object to be processed [to be] smaller in any direction than an area of the opposing side of the object.

In response, the examiner notes that the wherein clause of claim 13 is not considered to effectively further limit the claim. The clause reads,

wherein a length in any direction  
of an area of a surface of the potentially controlled first or second electrode, which is arranged in a position opposite to the plasma source via the object to be processed, is smaller than an area of a surface of the plasma source superposed on the object to be processed.

Applicant argues that the length of the electrode is shorter in all directions. This argument is not commensurate with the scope of the claim because the claim allows a nonspecific length in any direction on the surface of one electrode to be smaller than a

Art Unit: 1763

nonspecific area of the second electrode superposed onto the object to be processed.

A limitation that requires “a length ... of an area” on one electrode to be “smaller than an area” of another surface, does not effectively add a limitation because it allows for the selection of any length within any area on the surface of the one electrode.

Fukuda teaches that one dimension of an electrode can be relatively short ([0103]).

When a layer is formed on a substrate being transported relatively to the electrode in the layer forming method of the invention, the length in the transport direction of the electrode discharge surface is preferably not less than one tenth, more preferably not less than one fifth, and still more preferably not less than one-half of the length in the transverse direction of the electrode discharge surface. This means that the longer length in the transport direction of the electrode discharge surface is preferred, whereby a layer having a uniform thickness with high performance and without unevenness is formed.

It is also noted that Fukuda teaches treating a long sheet of material. As such, the surface area of the material processed by Fukuda is larger than the area of the electrode.

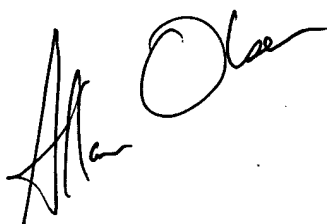
### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Allan Olsen whose telephone number is 571-272-1441. The examiner can normally be reached on M, W and F: 1-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1763

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read 'Allan Olsen', is written over a large, faint circular stamp.

Allan Olsen  
Primary Examiner  
Art Unit 1763